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# ***Guide for Cutting Eastern White Pine***

U. S. DEPARTMENT OF AGRICULTURE  
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White pine logs, New Hampshire.

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# GUIDE FOR CUTTING EASTERN WHITE PINE

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## *Description of the Forest*

Eastern white pine stands may be pure white pine, but usually they have varying proportions of such species as red oak, white ash, hemlock, gray birch, and red maple.

Most white pine stands are second growth. Less than one-fourth the area in eastern white pine in the Northeastern States supports trees of saw-timber size. Frequently, under the

pressure of wartime cutting, even *immature stands, barely large enough to make two-by-fours, are being stripped of timber.* The labor and wear and tear on machinery and tires thus wasted in the pine region on trees too small to pay their way are enormous.

If half, or more, of the trees 6 inches and larger in diameter breast high <sup>2</sup> in

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<sup>2</sup> Diameter breast high is at 4½ feet above average ground level. Stump diameter is an inch or two larger.



your wood lot are white pine, the following suggestions apply.

### *Estimate the Stand*<sup>3</sup>

If you plan to sell standing trees for the buyer to cut, you will need to make a complete inventory of the salable trees on the tract. If you plan to cut your own timber and sell logs, measure a sample, perhaps 10 or 20 percent of the trees of cutting size, in order to get a fair idea of the volume and quality of timber available.

#### Scale the logs after cutting to correct

<sup>3</sup> For more detailed information obtain a copy of U. S. Department of Agriculture Farmers' Bulletin 1210, Measuring and Marketing Farm Timber.

<sup>4</sup> Local markets determine the kind and value of trees suitable for saw or veneer logs, pulpwood, chemical wood or fuel wood. The local market and value of each product should be ascertained. Usually the best values are obtained for veneer or sawlogs. Smaller or less valuable trees and tops may be utilized for pulpwood or chemical wood if not needed for future saw timber; fuel wood is usually made from tops or trees not suitable for other products.

this rough estimate. *Knowing what you have to sell, you are in a position to secure a fair price for it.* In making an inventory, tally all trees 8 inches in diameter and larger, designating them as best fitted for saw timber, pulpwood, or perhaps just fuel wood, by using a form similar to that shown on pages 6 and 7. In general, trees 10 inches in diameter and larger should be used for saw timber. Do not cut the trees below 10 inches unless they are crowded and need thinning.

The timber-estimating form, just referred to, is merely a guide. Figures from a 1/2-acre tally of a pine stand have been inserted to illustrate its use. The headings dealing with products might be changed, where appropriate, to include poles, posts, or other material, or to exclude items not marketable.<sup>4</sup>

## *Plan a 60-Percent Cut of Sawlogs*

A good general rule to follow in white pine saw-timber stands is to harvest no more than about 60 percent of the total board-foot volume. The figures used on the sample form show 12,562 board feet of pine and 502 board feet of hardwoods, plus about 8 cords of fuel wood per acre. Sixty percent would be 7,800 board feet per acre. The volume cut will be restored by growth within 15 years, when a second cut, yielding even higher value timber, should be possible.

*Mark the trees to be cut.* Large, clear pine logs are sometimes sold for box lumber because of lack of information on markets. Such logs make the highest grades of lumber and should bring specialty prices. There may

also be valuable oak ship timbers, or ash handle stock, in the stand.

Retain for future cutting clean-boled, straight pines with good healthy crowns as well as occasional red or white oak, ash, basswood, and hemlock, wherever these are present and are needed to round out the reserve stand. Free the crowns of the trees that are reserved.

Some acres will be cut heavily and some lightly, but over any 5 acres the cut should add up to about 60 percent of the total board-foot volume. Try to leave a good thrifty tree over 10 inches in diameter every 40 feet or so, in addition to the smaller trees. This is usually possible in stands running 5,000 board feet per acre, or more. A 60-percent cut in stands having less than 5,000 board feet per acre leaves smaller

trees as the reserve stand and extends the interval between successive cuts.

Consult a practicing forester <sup>5</sup> about the possibilities of other systems of cutting for your particular woodland.

### *Small Trees*

If the merchantable volume is made up of large logs, rather than many small ones, it will cost much less per thousand board feet to cut and haul. This will make for greater profit, if you do your own logging; it should result in a better price, if you sell stumpage, because the operator can log with less expense.

*Twice as many man-hours are required to cut 1,000 board feet of logs*

<sup>5</sup> Your State forester, extension forester, local Forest Service officer, foresters of other Government agencies, or private consulting foresters can help you estimate, mark, manage, and market your trees. Seek their counsel before cutting.

*from 6-inch as from 13-inch pine.* The same applies to skidding. It takes almost three times as many man-hours to mill 1,000 board feet of 6-inch as of 12-inch logs. At least 16 percent of the labor can be saved by cutting nothing under 13 inches in diameter in the usual second-growth stands.

The value of graded lumber will be 50 percent greater from 13-inch trees than from 6-inch trees.

A cordwood cutter can produce 2 cords from 12-inch trees in the time it takes to cut 1 cord from 4-inch trees.

### *Do Not Cut—*

If your survey shows that the merchantable volume in trees 10 inches in diameter and larger is less than 2,000 board feet per acre in pine and good red or white oak, ash, hemlock, or



basswood (except possibly for occasional high-value trees containing specialty products). Thin dense young stands for cordwood, poles, or posts, so as to give the best trees room to grow.

## SCALING LOGS

Measure the volume cut by using one of the log rules on page 8. The Doyle rule is most commonly used in

the East, but it benefits the buyer by giving too low a volume for logs under 28 inches in diameter. The Scribner rule is more accurate, but the International rule is the most accurate and fairest. It allows a  $\frac{1}{4}$ -inch saw kerf and gives the lumber content of the log resulting from careful sawing by good methods. If another rule is proposed, check it against the values given on page 8 to see how much it varies from the International rule.

(1) Diameter class <sup>2</sup> (inches)	Softwoods					
	(2) Board feet per tree	(3) Cords per tree <sup>3</sup>	(4) Number of trees		(5) Volume, board feet	(6) Volume, cords
			Saw timber	Cordwood	Saw timber	Cordwood
8.....		0.07				
9.....		.10				
10.....	70	.13	12		840	
11.....	91	.15	6		546	
12.....	112	.18	4		448	
13.....	141	.21	4		564	
14.....	170	.26	3		510	
15.....	207	.31	3		621	
16.....	244	.38	2		488	
17.....	282	.44	2		564	
18.....	320	.53	1		320	
19.....	370	.61	1		370	
20.....	420	.70	1		420	
22.....	500	.78				
24.....	590	.86	1		590	
26.....	690	.94				
28.....	800	1.03				
30.....	970					
Total, ½-acre.....			40		6,281	
Total per acre.....			80		12,562	

<sup>1</sup> Tally in columns 4 and 9 the number of trees in each diameter class. Simple multiplication will then give the board-foot and cord volumes for each class. Where values for saw timber and cordwood overlap, distinguish in your tally between timber and cordwood trees.

<sup>2</sup> Diameter of tree measured at breast height (4½ feet). If you choose to group your trees by 2-inch classes, as 8,

# Estimating Form <sup>1</sup>

Hardwoods					
(7) Board feet per tree	(8) Cords per tree <sup>3</sup>	(9) Number of trees		(10) Volume, board feet	(11) Volume, cords
		Saw timber	Cordwood	Saw timber	Cordwood
.....	0.20	.....	13	.....	2.60
.....	.25	.....	1	.....	.25
42	.30	.....	2	.....	.60
61	.35	.....	.....	.....	.....
75	.40	.....	1	.....	.40
95	.48	.....	.....	.....	.....
114	.56	1	.....	114	.....
137	.65	1	.....	137	.....
160	.75	.....	.....	.....	.....
192	.85	.....	.....	.....	.....
224	.95	.....	.....	.....	.....
255	1.07	.....	.....	.....	.....
286	1.18	.....	.....	.....	.....
354	.....	.....	.....	.....	.....
421	.....	.....	.....	.....	.....
500	.....	.....	.....	.....	.....
600	.....	.....	.....	.....	.....
700	.....	.....	.....	.....	.....
.....	.....	2	17	251	3.85
.....	.....	4	34	502	7.70

10, 12, etc., remember that in classifying, diameters greater than the odd inch go in the higher class. (Example: A tree 11.1 or 13.0 inches is in the 12-inch class; one from 9.1 to 11.0 inches is in the 10-inch class.)

<sup>3</sup> This is for standard 48-inch cords. For 52-inch cords, decrease each item by 7.5 percent. For 60-inch cords, decrease each item by 20 percent.

# International (1/4-inch) Rule

Diameter of log at small end, inside bark (inches)	Scale in board feet for log length of—				
	8 feet	10 feet	12 feet	14 feet	16 feet
8.....	15	20	25	35	40
10.....	30	35	45	55	65
12.....	45	55	70	85	95
14.....	65	80	100	115	135
16.....	85	110	130	155	180
18.....	110	140	170	200	230
20.....	135	175	210	250	290
22.....	170	215	260	305	355
24.....	205	255	310	370	425

## Doyle Rule

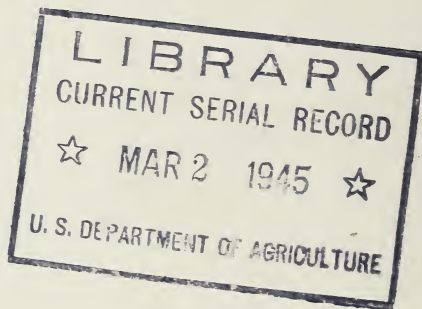
8.....	8	10	12	14	16
10.....	18	23	27	32	36
12.....	32	40	48	56	64
14.....	50	62	75	88	100
16.....	72	90	108	126	144
18.....	98	122	147	171	196
20.....	128	160	192	224	256
22.....	162	202	243	283	324
24.....	200	250	300	350	400

## Scribner Rule

8.....	.....	.....	25	28	32
10.....	.....	.....	40	45	50
12.....	.....	.....	60	70	80
14.....	.....	.....	85	100	115
16.....	.....	.....	120	140	160
18.....	.....	.....	160	190	213
20.....	.....	.....	210	245	280
22.....	.....	.....	250	290	334
24.....	.....	.....	300	350	404







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